

Applicant(s): Tony Hollings et al.
U.S.S.N.: 10/563,639

In the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (currently amended) A multi-colour printing unit for a web-offset press comprising a plurality of printing couple pairs mounted vertically one above the other in a stack, each printing couple of said printing couple pairs comprising a plate and blanket cylinder and each printing couple pair being arranged so as to print a different colour on both sides of a paper web passing in a vertically upward direction between the printing couples of each pair, and an inking system associated with each print couple operable to supply ink to the plate cylinder thereof in an operative position, wherein the printing unit comprises a primary module carrying all the printing couple pairs and a pair of secondary modules carrying the inking systems, the secondary modules being ~~movable~~ laterally slideable into a non-operative position in which ~~the primary and both~~ the secondary modules are separated from ~~each other the primary module~~, characterised by further comprising means for moving the primary module out from between the secondary modules when the secondary modules are in their non-operative positions and separated from the primary module to enable a second primary module, comprising a plurality of printing couple pairs in which the plate and blanket cylinders are of a different diameter to the diameter of the plate cylinders of the original primary module, to take the place of the original primary module so that the secondary modules can be moved back into an operative position with said second primary module.

2. (original) A printing unit according to claim 1, wherein the primary module is disposed between the pair of secondary modules.

3. (previously presented) A printing unit according to claim 1, wherein the ~~or~~ ~~each secondary module is slideable in a lateral direction away from the primary module to~~

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~~separate the printing unit into said primary and secondary modules~~ primary and secondary modules each define a path for a paper web extending vertically between the print couples of each pair, the second primary module being positionable in place of the original primary module such that the location of web path associated with the original primary module and with the second primary module remains unchanged.

4. (original) A printing unit according to claim 3, wherein each of the secondary modules are slideable laterally away from the primary module in opposite directions.

5. (currently amended) A printing unit according to claim 3, wherein ~~the each~~ secondary modules are module is slideably mounted on a supporting base.

6. (original) A printing unit according to claim 5, wherein a slide unit is attached to each of the secondary modules for cooperation with a guide track on the supporting base.

7. (original) A printing unit according to claim 6, wherein the slide unit includes pre-loaded roller bearings that cooperate with a recess on the guide track.

8. (previously presented) A printing unit according to claim 6, wherein the secondary modules include a carriage to which they are immovably attached, the slide units being mounted on the carriage.

9. (previously presented) A printing unit according to claim 6, including means for driving said carriage along the track.

10. (original) A printing unit according to claim 9, wherein the drive means includes a motor drivingly connected to a ball screw mounted to the supporting base and a connecting member on the ball screw attached to the secondary module such that the secondary module slides on the supporting base in response to rotation of the ball screw by the motor.

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11. (original) A printing unit according to claim 10, wherein the motor is connected to the ball screw via a pair of pulleys and a drive belt.

12-14. (canceled)

15. (previously presented) A printing unit according to claim 1, including a plurality of additional primary modules, said means enabling the primary module located between the secondary modules to be replaced with a selected one of said plurality of additional primary modules when the secondary modules are moved into their non-operative positions.

16. (canceled)

17. (currently amended) A printing unit according to claim ~~16~~ 1, comprising a cooperating adjustment mechanism on the primary and secondary modules so that the inking systems adjust to plate cylinders of different diameters when the secondary modules are returned to their operative positions.

18. (currently amended) A printing unit according to claim ~~12~~ 1, wherein said means for moving the primary module includes a slide member on the primary module which cooperates with a guide track attached to a supporting base on which the primary modules sits in an operative position.

19. (original) A printing unit according to claim 18, wherein said means further includes a transfer bogie which cooperates with the or each primary module to push it along the guide track onto a transfer pallet.

20. (previously presented) A printing unit according to 1, wherein dampening systems are mounted to each of the secondary units.

21. (previously presented) A method of reconfiguring a multi-colour printing unit for a web-offset press comprising a plurality of printing couple pairs, each printing couple of said printing couple pairs comprising a plate and blanket cylinder and each printing couple pair being arranged so as to print a different colour on both sides of a paper web passing between the print couples of that pair, and an inking system associated with each print couple operable to supply ink to the plate cylinder thereof in an operative position, wherein the printing unit comprises a primary module carrying all the printing couple pairs and a pair of secondary modules carrying the inking systems, the method including the step of moving the secondary modules into a non-operative position in which the primary and the secondary modules are separated from each other, characterised by the step of moving the primary module out from between the secondary modules when the secondary modules are in their non-operative positions and moving a second primary module, comprising a plurality of printing couple pairs in which the plate and blanket cylinders are of a different diameter to the diameter of the plate cylinders of the original primary module, into the position previously occupied by the original primary module and, moving the secondary modules back into an operative position with the second primary module.

22. (original) A method according to claim 21, wherein the method includes the step of moving the primary module out from between the secondary modules when the secondary modules have been moved into the non-operative position.

23. (original) A method according to claim 22, wherein the method includes the step of moving the primary module in a direction substantially at right angles to the direction of movement of the secondary modules between their operative and non-operative positions.

24. (previously presented) A method according to claim 22, wherein the method includes the step of moving a different primary module stored remote from the secondary modules to between the secondary modules and returning the secondary modules to their operative positions with said different primary module.

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25. (original) A method according to claim 24 wherein the printing unit comprises a plurality of different primary modules stored remote from the secondary modules and the method includes the step of selecting one of said different primary modules and moving said selected primary module to between the secondary modules and returning the secondary modules to their operative positions with said selected primary module.

26. (previously presented) A method according to claim 24, including the step of replacing the primary module with a primary module carrying plate cylinders of a different diameter to the diameter of the plate cylinders carried by the primary module that is being replaced.

27. (previously presented) A folder for a web-offset printing press comprising an upper folder module including at least one former to impart a first longitudinal fold to a continuous web of printed matter passing over the or each former, a lower folder module to receive the folded web from the upper folder module and comprising means to cut the web into longitudinal sections and impart a second fold to each section substantially at right angles to the first longitudinal fold and, a delivery module comprising means to receive the folded sections from the lower folder module and deliver them for transportation out of the folder, characterised in that the delivery module is discrete and separable from the lower folder module.

28. (previously presented) A folder according to claim 56, wherein the lower folder module comprises a frame to which said means are mounted, the frame including cooperating means to releasably attach it to the upper folder module in an operative position.

29. (previously presented) A folder according to claim 56, wherein the lower folder module is a jaw folder and comprises a collect cylinder, a jaw cylinder and a cutting cylinder.

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30. (previously presented) A folder according to claim 56, wherein the lower folder module is a rotary folder module and comprises a folding cylinder, second fold rollers and a cutting cylinder.

31. (original) A folder according to claim 30, wherein the diameter of the respective cylinders of each lower folder module are different.

32. (previously presented) A folder according to claim 56, wherein the frame includes means to enable the lower folder module to be moved from its operative position to an off-line storage position.

33. (original) A folder according to claim 32, wherein said means for moving the lower folder module includes means to enable a different lower folder module to be located in said operative position in place of the lower folder module.

34. (previously presented) A folder according to claim 32, wherein the folder includes at least two lower folder modules, each module movable between the operative position in the folder and an off-line storage position.

35. (canceled)

36. (previously presented) A folder according to claim 56, wherein the delivery module comprises a frame and cooperating means to releasably attach the frame to the lower folder module in an operative position.

37. (previously presented) A folder according to claim 56, wherein the means in the delivery module to receive the folded sections from the lower folder and deliver them for transportation out of the folder comprises a rotatably mounted paddle wheel.

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38. (original) A folder according to claim 37, wherein the delivery unit further comprises a stripper and a delivery conveyor to receive folded sections from the paddle wheel and transport them from the folder.

39. (previously presented) A folder according to claim 37, wherein the paddle wheel is rotatably driven by its own motor.

40.-44. (canceled)

45. (previously presented) A folder according to claim 39, wherein the motor of the paddle wheel is mounted to the delivery module.

46. (previously presented) A method of reconfiguring a folder for a web-offset printing press comprising an upper folder module including at least one former to impart a first longitudinal fold to a continuous web of printed matter passing over the or each former, a discrete lower folder module separable from the upper folder module to receive the folded web from the upper folder module and comprising means to cut the web into longitudinal sections and impart a second fold to each section substantially at right angles to the first longitudinal fold and, a delivery module comprising means to receive the folded sections from the lower folder module and deliver them for transportation out of the folder, wherein method includes the step of separating the lower folder module from the upper folder module and replacing the lower folder module with another lower folder module, the method being characterised by the step of separating the delivery module from the lower folder module and re-attaching the delivery module to said other lower folder module.

47. (previously presented) A printing press including a plurality of printing units according to claim 1.

48. (previously presented) A printing press including a folder according to claim 27.

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49.-51. (canceled)

52. (previously presented) A web-offset printing press comprising a plurality of print units and a folder located adjacent to the print units, each print unit defining a path for a web of paper that passes through each print unit and into the folder, each print unit comprising means for slitting the web to form a plurality of ribbons and means for turning each of said ribbons the same number of times between the print unit and the folder so that each ribbon lies in a parallel plane one above the other as they travel towards and into the folder, wherein the print units are arranged so that all the webs lie in substantially the same plane as they pass through their respective printing units prior to being slit into ribbons.

53. (previously presented) A web-offset printing press according to claim 52, wherein the press is configured so that the web passing up through the print unit lies in a plane at right angles to the plane occupied by each of the ribbons as they pass down into the folder.

54. (previously presented) A web-offset printing press according to claim 52, wherein the printing unit comprises print and blanket cylinders arranged to rotate about first parallel axes and the folder comprises cylinders arranged to rotate about second parallel axes, the first and second axes being at right angles to each other.

55. (previously presented) A web-offset press according to claim 52, comprising a plurality of print units each having means for slitting the web passing through a print unit to form a plurality of ribbons and each having means for turning said ribbons so that the ribbons from each print unit lie in a parallel plane one above the other as they travel towards and into the folder.

56. (currently amended) A folder according to claim ~~23~~ 27, wherein the lower folder module is discrete and separable from the upper folder module.

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57. (new) A printing unit according to claim 5, wherein the primary module is mounted to said supporting base separately to each of the secondary modules.